

GRAZING RESEARCH AT THE U.S. DAIRY FORAGE RESEARCH CENTER

Fall calving with grazing during subsequent summer.

Milk production of fall-calving dairy cows during subsequent summer grazing was evaluated in two consecutive years using a total of 80 mid-to-late lactation Holsteins. Cows calved during September and October and grazed from April to August in the following year. In yr 1, 27 cows grazed a native grass pasture and 13 cows grazed a native grass-clover mixed pasture containing 26% red clover and white clover. In yr 2, 40 cows grazed native grass pasture as one group. Also, cows in yr 2 were administered bovine somatotropin, whereas in yr 1 no bST was used. Grazing cows also were fed concentrate supplements at 13.6 lb/day of dry matter (DM) in yr 1 and 17.3 lb/day of DM in yr 2 to provide 35 to 40% of total intake. Average daily milk during the grazing period decreased 7.9 lb in yr 1 and 16.9 lb in yr 2 when compared with milk yield extrapolated from the lactation curve established 10 wk prior to being turned out to pasture (see Figures 1 and 2). Estimated DM intake during grazing was also less than what would have been expected had cows continued on a total mixed ration (TMR) in confinement. Cows grazing the mixed pasture of grass and clover yielded 2.9 lb/day more milk than those grazing the grass pasture in yr 1. A decrease in milk resulting from the change from TMR fed in confinement to grazing supplemented with concentrates was not avoided with these mid to late lactation cows, but the cumulative loss over the lactation was less than with early lactation cows in a companion study. Clover enhances the grazing value of pasture when grown with grasses.

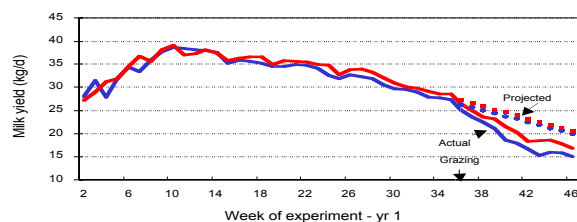


Figure 1. Milk yield of cows grazing grass pasture (●) or grass-clover mixed pasture (■) during wk 36 to 46 of experiment. Cows were fed TMR before wk 36. Milk yield dropped during the 1st wk of grazing and remained lower than projected from the lactation curves that would have developed if cows remained on TMR-yr 1.

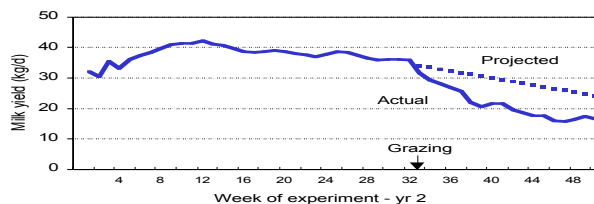


Figure 2. Milk yield of cows grazing grass pasture during wks 33 to 50 of experiment. Cows were fed TMR before wk 33. Milk yield dropped during the first week of grazing and remained lower than projected from the lactation curve that would have developed if cows remained on TMR-yr 2.

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Concentration of conjugated linoleic acid (CLA) in milk is increased during grazing.

CLA is a fatty acid that is found primarily in ruminant meat and milk products. It has been shown to be a potent anticarcinogen in experiments with laboratory animals. A series of studies have been conducted at the USDFRC to evaluate the effect of cow diet on CLA content of milk.

Grazing, in contrast to feeding conserved forages, is one of the most reliable ways to increase CLA content of milk. Grazing has increased milk content of CLA by 3-5 fold compared to milk from cows fed in confinement. Another way to increase milk CLA content is to feed 5% vegetable oil in the diet.

It is too early to say whether increasing CLA content of milk will improve human health. Experiments with laboratory animals strongly suggest that it has potential for that. Experiments with humans must be long term, and such studies are underway in several locations around the world.

Cracked dry or finely ground high moisture shelled corn as a supplement for grazing cows.

Feeding shelled corn as the primary supplement in cracked dry form or ground high moisture form to grazing cows was studied in an experiment utilizing 32 cows in late lactation. Each of the two forms of corn accounted for 74.7% of the concentrated supplement, which was fed at 19.8 lb/day (DM). During the 13-week experiment, cows grazed permanent native pasture containing mostly grasses and some clover. Milk yield was 5.3 lb/day higher for cows fed ground high moisture shelled corn than for those fed dry cracked shelled corn. Milk fat content was lower (3.28 vs. 3.67%), but protein content was higher (3.26 vs. 3.15%) for the high moisture corn supplement. Results suggest that high moisture corn can serve as a better supplement for grazing cows than dry corn, likely by providing more metabolizable energy and microbial protein due to more fermentable and digestible starch.

